

**IN THE CLAIMS** Please amend claims 11-17 as follows:

11. (Amended) A molded article according to claim 25,

wherein the synthetic resin sheet is a transparent or translucent acrylic resin sheet

wherein the outer reinforcing shell layer comprises a thermoplastic resin, a coloring agent and a filler, and

wherein thermoplastic resin of the outer reinforcing shell layer is mixed with coloring agent and a filler so that said thermoplastic resin of the outer reinforcing shell layer is colored or patterned.

12. (Amended) A molded article according to claim 25, wherein the synthetic resin sheet is colored acrylic resin sheet.

13. (Amended) A molded article according to claim 25, wherein said resin of the outer reinforcing shell layer is glass fiber reinforced acrylonitrile-butadiene-styrene resin or glass fiber reinforced acrylonitrile-styrene resin or non-reinforced acrylonitrile-butadiene-styrene resin or non-reinforced acrylonitrile-styrene resin.

14. (Amended) A molded article according to claim 25,

wherein said surface layer is made of one selected from translucent acrylonitrile-butadiene-styrene resin, translucent acrylonitrile-styrene resin, transparent acrylonitrile-butadiene-styrene resin, and transparent acrylonitrile-styrene resin;

wherein at least the surface layer is made of translucent acrylonitrile-butadiene-styrene resin or translucent acrylonitrile-styrene resin; and wherein said molded article is patterned.

C1  
B3  
cond  
15. (Amended) A molded article according to claim 25,  
wherein the surface layer is provided with a skid-preventing means comprising a textured surface layer obtained by subjecting said surface layer to thermoforming twice when said outer reinforcing shell layer is subjected to an injection molding.

16. (Amended) A molded article according to claim 25,  
wherein said one selected from acrylonitrile-butadiene-styrene resin and acrylonitrile-styrene resin is reinforced with glass fiber in which mean length of the glass fiber is 400 to 1000  $\mu\text{m}$ .

17. (Amended) A molded article according to claim 25,  
wherein said reinforcing layer is formed integrally with a reinforcing rib of increased thickness in relation to the thickness of the remainder of the outer reinforcing shell layer.

✓  
Please add new claim 25 as follows:

B3  
25. (New) A synthetic resin molded article, comprising:  
a surface layer having a front and rear surface; and  
an outer reinforcing shell layer coating one surface of said surface layer;  
wherein said surface layer is produced by subjecting a synthetic resin sheet to two-step thermoforming,  
and further wherein said outer reinforcing shell layer is obtained by subjecting one selected from acrylonitrile-butadiene-styrene resin and acrylonitrile-styrene resin to injection molding.

In re the Application of: **WATANABE et al.**  
Serial No.: **09/700,908**

Group Art Unit: **1772**  
Examiner: **Walter Aughenbaugh**

### **REMARKS**

Claims 1-25 are pending in the present application. Claims 1-10 and 18-24 are withdrawn from consideration as being directed toward a non-elected invention. New claim 25 is herein added. Claims 11-17 are herein amended.

### **Specification**

The abstract of the disclosure is objected to because the abstract discusses a method of manufacturing an article, while the elected claims are drawn to the article. Applicants herein amend the abstract to no longer refer to the invention as a method.

### **Claim Rejections under 35 U.S.C. §112**

*The structural limitations of claim 1 must be included in an independent claim that must be added to or incorporated in the claims of Group II, claims 11-17.*

Applicants herein add new claim 25, as suggested by the Examiner, which is incorporated with and added to the claims of Group II.

*Claims 11-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.*

The structure recited in claim 1, on which the elected claims 11-17 depend, is vague and indefinite. The structural relationship between the “container” and the “panel like surface layer

member” (line 4 of claim 1) is unclear. “Container” assigns no structure and causes confusion as to what portion of the overall structure “container” is intended to refer to- is “container” intended to mean the entire structure or only the “panel like surface layer member”?

*In regard to the phrase “wherein said molded article is a container or a panel” in lines 2-3 of each of claims 11-16, no structure is given for the container or the panel and therefore the claim is incomplete with regard to the structure of the container or panel.*

Applicants herein rewrite and clarify old claim 1 as new claim 25, incorporating changes to address the above rejections.

*In regard to claim 11, the phrases “colored in such a manner that transparency or translucency can be attained” (lines 4-5) and “mixed with coloring agent and a filler in such a manner that said thermoplastic resin of the reinforcing layer can be colored or patterned like a marbling” (lines 6-8) are not positive recitations and therefore indefinite and are not given patentable weight. Further, “like a marbling” is indefinite.*

Applicants herein rewrite these limitations.

*Further in regard to claim 11, there is no antecedent basis for “thermoplastic resin”.*

Applicants herein amend the claims to properly introduce the components of the outer shell reinforcing layer by adding the clause, “wherein the outer reinforcing shell layer comprises/consists of a thermoplastic resin, a coloring agent and a filler”.

*In regard to claims 13 and 14, “ABS” and “AS” must be written out in full form.*

Applicants herein address this issue throughout the claims.

*In regard to claim 14, "wherein the surface layer member is made of translucently colored ABS resin or AS resin or transparently colored ABS resin or AS resin" is indefinite. The terms "translucently" and "transparently" are relative terms that render the claim indefinite.*

Applicants herein amend the claim to use a Markush group to recite that the "surface layer member is made of one selected from ~~translucently colored ABS~~ translucent acrylonitrile-butadiene-styrene resin or, translucent AS acrylonitrile-styrene resin or, transparently colored ABS transparent acrylonitrile-butadiene-styrene resin or, and transparent AS acrylonitrile-styrene resin. This amendment changes the adverbs "translucently" and "transparently" to the adjectives "translucent" and "transparent".

*In further regard to claim 14, the phrase "wherein at least the first layer of the surface layer member is made of translucently colored ABS resin or AS resin" is indefinite. In addition to the use of the relative terms cited above, there is no antecedent basis for "the first layer of the surface layer member".*

Applicants submit that the molded article is comprised of two layers, a surface layer and an outer reinforcing shell layer, and that this claim refers to the surface layer. Applicants so amend the claim.

*In further regard to claim 14, the phrase "wherein said molded article is patterned like a marble having light depth" is indefinite. The phrase "like a marble" is indefinite. The phrase "having light depth" is vague and indefinite; it is unclear whether or not this phrase is intended to recite a structural limitation.*

Applicants herein address these rejections.

*In regard to claim 15, the structure of the “skidding means” is not pointed out. The phrase “to have a sharp shape” is indefinite. It is unclear if the skidding means has a sharp shape or if the surface layer member has a sharp shape. The nature of the “skidding effect” is unclear.*

Applicants submit that the skid-preventing means is a texturing of the surface layer. Applicants herein amend claim 15 to recite “a ~~skidding~~ skid-preventing means comprising a textured surface layer”.

*Claim 17 is indefinite. The phrase “a thickness” implies that the outer reinforcing layer has more than one thickness- these thicknesses must be particularly pointed out. No structure is given for the “reinforcing rib”. The structural relationship between the reinforcing layer and the reinforcing rib is not given.*

Applicants herein amend the claim in order to clarify the reinforcing rib and the relative thickness.

#### **Claim Rejections under 35 U.S.C. §102**

*Claims 11-13 and 16 are rejected under 35 U.S.C. §102(b) as being anticipated by JP 08-090688 to Nakagawa.*

The Examiner notes that Nakagawa teaches a synthetic resin container comprising an acrylic resin sheet coated with a thermoplastic reinforcement layer, and further teaches that ABS plastics is the preferred class of plastics for the thermoplastic reinforcement layer (paragraphs 19 and 34). Nakagawa teaches that glass fibers of about 1-6 mm are used to increase rigidity, and further teaches

In re the Application of: **WATANABE et al.**  
Serial No.: **09/700,908**

Group Art Unit: 1772  
Examiner: **Walter Aughenbaugh**

that additives such fillers and coloring agents may be added. Nakagawa teaches that marble patterns are made in the thermoplastic layer and that the acrylic resin sheet is transparent.

**Claim Rejections under 35 U.S.C. §103**

*Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa in view of U.S. Patent No. 5,494,718 to Adams et al.*

The Examiner concludes that it would have been obvious to use ABS resin as the material of the acrylic resin sheet of Nakagawa because Adams et al. teach that it is well known to use ABS resin as the material for sanitaryware vessels that are exposed to any material that is held in the vessel.

*Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa in view of Stier et al. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa in view of Seymour et al.*

**Response to the Rejections under 35 U.S.C. 102 and 103**

Applicants initially note that the outer layer of the product of Nakagawa is not injection molded, rather, it appears to be thermoformed. Therefore, Applicants submit that not all the limitations of the present invention appear to be taught by the cited reference.

Applicants note that the technical problem of the present invention is to provide a process for producing a high quality molded article such as a container made of synthetic resin, a panel made

of synthetic resin which has strength and rigidity capable of withstanding severe heat test, light weight and low producing cost.

On the other hand, the technical problem of the cited references is to provide a process for producing synthetic resin container such as a bathtub, where working place or circumstance is not polluted, the container can be produced with good safety and health as well as excellent producing efficiency, and the container has a good recycling property, long life and good heat insulation.

Therefore, the technical problem of the present invention is quite different from that of the cited references. Accordingly, in order to solve the problem to the present invention, the cited references would not have been used by one skilled in the art.

Applicants note that the thermoplastic resin used in the present invention is similar to that of the cited references, but in the case of the molded article where the surface layer is made of transparent acrylic resin sheet by virtue of heat insulating effect in the mold, glass fiber or filler mixed in the outer reinforcing layer will not come up to the surface. For that reason, the product having excellent external appearance as well as the product having a classy image with a depth can be obtained by subjecting the outer reinforcing layer to color tone/pattern. Further, in the product having a surface layer made of colored transparent or translucent acrylic resin and an outer reinforcing layer, the first layer of which is made of translucently colored synthetic resin, there can be obtained a marble-like molded article with light and depth as an excellent effect. Moreover, the molded article of the present invention is quite different from that of the cited references in the following respects.



(1) By means of thermoforming in two stages, excellent quality of the molded article can be reproduced.

(2) Weight of the molded article is light, because thickness of the surface layer member and thickness of the outer reinforcing shell member are small.

(3) The outer reinforcing member is reinforced in such a manner that the outer reinforcing member is composed of glass fiber reinforced ABS resin or glass fiber reinforced AS resin. Such a manner for reinforcing the outer reinforcing member is new, and mechanical strength such as rigidity is excellent.

(4) As a result, the product (molded article) of the present invention has a strength capable of withstanding severe heat test and rigidity.

Accordingly, the synthetic resin molded article of the present invention is quite different from that of the cited references. For that reason, the synthetic resin molded article of the present invention is not obvious over the cited reference 1, even if the material used for the molded article of the present invention is similar to that of the cited references.

Applicants filed the above remarks on March 21, 2000 in response to a WRITTEN OPINION received during the International Stage of the application. In response thereto, the Examiner found that claim 11 to 17 as well as claim 1 are not obvious to the person skilled in the art. Further, in the International Preliminary Examination Report the term “thermoforming in two stages” is understood to mean that the thermoforming of the second stage is made in an injection process by the pressure contact with a mold achieved by the injection resin temperature and the injection pressure. Applicants submit that this limitation is not taught or suggested by the cited references.

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Serial No.: **09/700,908**

Group Art Unit: **1772**  
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Therefore, Applicants submit that the process steps for producing the product of the present invention are neither taught nor suggested by the cited references, and therefore that the product of the present invention is novel and unobvious over the cited references. Favorable reconsideration and early allowance of the claims is respectfully requested.

Should the Examiner deem that any further action by Applicants would be desirable to place the application in condition for allowance, the Examiner is encouraged to telephone Applicants' undersigned attorney.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fee for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 01-2340.

Respectfully submitted,

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